

CLAIMS

1. A closure (1) for containers characterized in that it comprises:
- 5 - rigid supporting and sealing means (3); and
- a covering body (5) made of plastic material, said covering body (5) cooperating with and integrating said supporting and sealing means (3).
- 10 2. The closure (1) for containers as claimed in claim 1, characterized in that said covering body (5) is placed on the outside around said supporting and sealing means (3).
3. The closure (1) for containers as claimed in 15 claim 1 or 2, characterized in that said covering body (5) is made of an elastomeric material.
4. The closure (1) for containers as claimed in claim 1, characterized in that said covering body (5) is adapted to cooperate by interference with the 20 container opening to prevent the product contained therein from leaking out and to prevent gases and/or foreign substances from entering inside the container.
- 25 5. The closure (1) for containers as claimed in any one of claims 1 to 4, characterized in that said covering body (5) is made of thermoplastic foam

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material.

6. The closure (1) for containers as claimed in any one of claims 1 to 4, characterized in that said covering body (5) is made of thermosetting foam material.

7. The closure (1) for containers as claimed in any one of claims 1 to 4, characterized in that said covering body (5) is made of crosslinked foam material.

10 8. The closure (1) for containers as claimed in any one of claims 1 to 7, characterized in that said closure (1) is a plug for containers for foodstuff.

9. The closure (1) for containers as claimed in claim 8, characterized in that said plug (1) is adapted to close bottles containing beverages.

15 10. The closure (1) for containers as claimed in claim 9, characterized in that said plug (1) is adapted to close bottles containing alcoholic beverages, in particular wine.

20 11. The closure (1) for containers as claimed in any one of claims 8 to 10, characterized in that said plug (1) is adapted to be placed onto a bottle, in order to close it, using an ordinary plugging machine, and is adapted to be removed from a bottle, when 25 opening it, using ordinary plug (1) removing means.

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12. The closure (1) for containers as claimed in claim 11, characterized in that said plug (1) removing means are a corkscrew.

13. The closure (1) for containers as claimed in 5 claim 1, characterized in that said closure (1) has gas-barrier characteristics, preventing gases from penetrating inside the container, and characteristics ensuring a lack of leakages of the closure material into the container, said barrier and lack-of-leakage 10 characteristics being guaranteed for a period that is not less than the one that can be obtained with a closure made of cork under optimum conditions.

14. The closure (1) for containers as claimed in claim 13, characterized in that it is further equipped 15 with barrier means placed on the side of said closure (1) facing the container interior.

15. The closure (1) for containers as claimed in claim 14, characterized in that said barrier means are composed of at least one thin layer.

20 16. The closure (1) for containers as claimed in claim 15, characterized in that said at least one thin layer is made of a precious metal, for example gold.

17. The closure (1) for containers as claimed in 25 claim 14, characterized in that said barrier means are composed of at least one disk, for example made of

glass.

18. The closure (1) for containers as claimed in
claim 14, characterized in that said barrier means are
composed of at least one washer, for example made of
5 glass.

19. The closure (1) for containers as claimed in
any one of the preceding claims, characterized in that
said supporting and sealing means (3) are composed of
a fitting (7), in particular a threaded hollow fitting
10 (7), that extends substantially along the whole length
of the closure (1), said fitting (7) being connected
to at least one lower support (9) and at least one
upper support (11), said at least one lower support
(9) being adapted to be coupled by interference with
15 the container opening to prevent gases from entering
thereinto, said at least one upper support (11) and
said fitting (7) being adapted to allow insertion of
closure (1) removing means into the closure (1) for
the removal thereof.

20 20. The closure (1) for containers as claimed in
claim 19, characterized in that said at least one
upper support (11) is equipped with a recess (12) for
insertion of closure (1) removing means and said
fitting (7) is equipped with a plurality of ribs (7')
25 for engaging with said closure (1) removing means.

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N 21. The closure (1) for containers as claimed in any one of claims 1 to 18, characterized in that said supporting and sealing means (3) are composed of at least one lower threaded support (13) and at least one upper threaded support (15) that are screwed into corresponding recesses formed inside said covering body (5), said at least one lower support (13) being adapted to be coupled by interference with the container opening to prevent gases from entering thereinto, said at least one upper support (15) being adapted to allow insertion of closure (1) removing means into the closure (1) for the removal thereof.

N 22. The closure (1) for containers as claimed in claim 21, characterized in that said at least one lower threaded support (13) and said at least one upper threaded support (15) are adapted to engage a hollow elongated support member (14) placed inside said closure (1).

N 23. The closure (1) for containers as claimed in claim 22, characterized in that said upper support (15) is equipped with an insertion recess (20) for the closure (1) removing means and said elongated support member (14) is equipped with a plurality of longitudinal ribs (21) for engaging said closure (1) removing means.

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24. The closure (1) for containers as claimed in any one of claims 1 to 18, characterized in that said supporting and sealing means (3) are composed of an elongated support body (26) that extends substantially along the whole length of the closure (1), said elongated support body (26) being equipped with at least one lower sealing member (28) adapted to guarantee sealing of the closure (1) against the container opening walls.
- 10 25. The closure (1) for containers as claimed in claim 24, characterized in that said covering body (5) is of cylindrical shape and said lower sealing member (28) is shaped as a frustum of a cone whose radius is less than the radius of the covering body (5).
- 15 26. The closure (1) for containers as claimed in claim 24 or 25, characterized in that said elongated support body (26) is further equipped with at least one upper sealing member (30) adapted to improve sealing of the closure (1) against the container opening walls.
- 20 27. The closure (1) for containers as claimed in claim 26, characterized in that said covering body (5) is of cylindrical shape and said upper sealing member (30) is shaped as a frustum of a cone whose radius is less than the radius of the covering body (5).

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N 28. The closure (1) for containers as claimed in
any one of claims 24 to 27, characterized in that said
elongated support body (26) is of cylindrical shape
and is closed at the end thereof that is facing toward
5 the container interior.

N 29. The closure (1) for containers as claimed in
any one of claims 1 to 18, characterized in that said
supporting and sealing means (3) are composed of a
first hollow member (30) whose cross section is "T"-
10 shaped and a second hollow member (32) whose cross
section is in the shape of an inverted "T", said
second hollow member (32) being adapted to contain
inside an end of said first hollow member (30) through
threaded engagement of respective ends (31; 33) of
15 said two members (30, 32), said members (30, 32) being
equipped with respective ends (30'; 32') having the
same shape and being respectively equipped with
recesses (35; 37) for inserting means for removing
said closure (1).

W 20 30. The closure (1) for containers as claimed in
any of claims 1 to 18, characterized in that said
supporting and sealing means (3) are composed of a
cylindrically-shaped upper hollow member (40) open at
both ends (41, 42), said upper member (40) being
25 placed above and outside a lower hollow member (43)

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that, in its central part (44), is shaped as an elongated cylinder that is inserted into said upper member (40), said lower member (43) in its part (46) facing toward the container interior being shaped as a flat closure equipped with insertion flarings (48) for insertion of said closure (1) into the container, a recess (49) allowing penetration of removing means into said closure (1) being directly formed in said covering body (5).

10 31. The closure (1) for containers as claimed in any one of claims 1 to 18, characterized in that said supporting and sealing means (3) are composed of three mutually coupled internal hollow members (50, 55, 58), said first internal hollow member (50) having an elongated cylindrical shape and comprising a step (51) formed inside it and two respective threaded coupling sections (52, 53), said first internal hollow member (50) being further equipped with a circular upper sealing projection (54), said second internal hollow member (55) having a cylindrical shape and being equipped in its upper part with a recess (56) for insertion of means for removing said closure (1) and being equipped in its lower part with a threaded section (57) adapted to cooperate through engagement 20 with the corresponding threaded section (52) of said 25

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first internal hollow member (50), said second internal member (55) abutting against said first internal member (50) on the shoulder of said step (51) in order not to excessively penetrate into said first member (50), said third internal hollow member (58) being almost completely threaded (in 59) in order to cooperate through engagement with the respective threaded section (53) of said first internal member (50), and being equipped with a lower flat part (60) 10 to perform a sealing and barrier function for said closure (1).

32. The closure (1) for containers as claimed in any one of claims 1 to 18, characterized in that said supporting and sealing means (3) are composed of a bearing member (63) having a substantially elongated cylindrical shape, said bearing member (63) being externally threaded (in 64) all along its length and being internally equipped with a plurality of ribs (65) for engaging with means for removing said closure (1), around said bearing member (63) there being screwed a first closure member (66) and a second closure member (67) that are identical and are composed of an internally threaded cylindrical body (66', 67') closed at one end by a circular flat cover 20 (66'', 67'') with its external edges bent slightly 25

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inwards.

33. The closure (1) for containers as claimed in any one of claims 1 to 18, characterized in that said supporting and sealing means (3) are composed of a bearing member (70) having a substantially elongated cylindrical shape, said bearing member (70) being internally threaded (in 71) all along its length and being internally equipped with a reinforcement cylindrical threaded structure (72) screwed inside it, an upper closure member (73) and a lower closure member (74) being screwed inside said bearing member (70), said upper closure member (73) being equipped with a cylindrical threaded body (74) that is screwed inside said bearing member (70) and that is overlapped by a cover (75) containing a recess (76) for insertion of means for removing said closure (1), said lower closure member (74) being composed of a cylindrical threaded body (77) adapted to be screwed inside said bearing member (70) and a circular flat lower cover (78) with flarings (79) for insertion into the container opening, said lower closure member (74) being shaped in such a way as to form a circular recess (80) between cylindrical body (77) and cover (78), said recess (80) being adapted to house an end of the bearing member (70) to increase the sealing and

strength of said supporting and sealing means (3).

34. The closure (1) for containers as claimed in any one of claims 1 to 18, characterized in that said supporting and sealing means (3) are composed of an upper closure member (91) and a lower closure member (92), said upper closure member (91) being composed of a hollow cylindrical body equipped at one of its ends with a plurality of small teeth (93) and at the opposite end with a cover (94) having a recess (95) for insertion of means for removing said closure (1), said lower closure member (92) being composed of a hollow cylindrical body equipped at one of its ends with a plurality of small teeth (96) and at the opposite end with a circular flat cover (97) equipped with a circular collar (98) adapted to contain the material of said covering body (5).

35. The closure (1) for containers as claimed in any one of claims 1 to 18, characterized in that said supporting and sealing means (3) are composed of an upper closure member (101) and a lower closure member (102), said upper closure member (101) being composed of a hollow cylindrical body equipped at one of its ends with a tooth (103) and at the opposite end with a cover (104) having a recess (105) for insertion of means for removing said closure (1), said lower

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closure member (102) being composed of a hollow cylindrical body equipped at one of its ends with a tooth (106) and at the opposite end with a circular flat cover (107) equipped with a circular collar (108) 5 adapted to contain the material of said covering body (5).

36. The closure (1) for containers as claimed in any one of claims 1 to 18, characterized in that said supporting and sealing means (3) are composed of an 10 upper closure member (121) and a lower closure member (122), said upper closure member (121) being composed of a hollow cylindrical body equipped at one of its ends with a threaded or toothed wall (123) and at the opposite end with a cover (124) having a recess (125) 15 for insertion of means for removing the closure (1), said lower closure member (122) being composed of a hollow cylindrical body equipped at one of its ends with a threaded or toothed recess (126) and at the opposite end with a circular flat cover (127) equipped 20 with a circular collar (128) adapted to contain the material of said covering body (5).

37. The closure (1) for containers as claimed in any one of claims 1 to 18, characterized in that said supporting and sealing means (3) comprise a 25 reinforcing member (129) having a basically

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cylindrical hollow body (130) terminating at both ends in annular shoulders (131, 131'), a lower and an upper, said lower annular shoulder (131) having a larger diameter than said upper shoulder (131'), a plurality of annular reliefs (132) being situated on the outer surface of the hollow body (130), the lower end of said hollow body (130) being closed by a base (133) and its upper end open, and the covering body (5) being formed directly on said reinforcing member (129), in such a way that the elastomeric material fills the cavity of said hollow body (130) and the external space between said lower and upper shoulders (131, 131'), said closure (1) being frustoconical in shape.

15 38. The closure (1) for containers as claimed in any one of claims 1 to 18, characterized in that said supporting and sealing means (3) comprise a reinforcing member (134) and a closure member (135), these being coupled together detachably, said reinforcing member (134) comprising a basically cylindrical hollow body (136) closed at the lower end by a base (137) and open at the upper end, around the outside of which lower base (137) is an upwardly-directed annular profile (138), a plurality 20 of longitudinal fins (139) being provided on the

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inside surface of said hollow body (136); which closure member (135) comprises a disk (140) whose upper surface includes a central depression (141) and on whose lower surface is a sleeve (142) whose form 5 and dimensions are such that it can be inserted into said hollow body (136), a plurality of longitudinal fins (143) being provided on the inside surface of said sleeve (142); which covering body (5) is of basically cylindrical form with an outward swelling 10 and an internal cavity, the surface of which is provided with ribs (144).

✓ 39. The closure (1) for containers as claimed in claim 38, in which said covering body (5) is made of LSR silicone.

✓ 40. The closure (1) for containers as claimed in any one of the preceding claims, characterized in that said closure (1) is further adapted to bear, in its upper part facing outside the container, writing and/or other signs relating to the container contents.

✓ 41. The closure (1) for containers as claimed in any one of the preceding claims, characterized in that it is further covered with a protective film placed all around said closure (1).

✓ 42. The closure (1) for containers as claimed in 25 claim 41, characterized in that said protective film

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is a silicone film.

✓ 43. The closure (1) for containers as claimed in
any one of the preceding claims, in which said
thermoplastic foam material is made by a hot-molding
5 process involving the use of a fluid in the
supercritical state as a blowing agent.

✓ 44. The closure (1) for containers as claimed in
claim 43, in which said fluid is nitrogen in the
supercritical state.

✓ 45. The closure (1) for containers as claimed in
any one of the preceding claims, in which the outside
surface of said closure is marked by a laser-marking
process.

✓ 46. The closure (1) as claimed in claim 45, in
15 which said laser is an Nd:YAG laser.

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